

## STANDARD OPERATING PROCEDURE

### EHAP Warehouse Facility Sample Storage Temperatures, Storage Maintenance and Security

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#### KEY WORDS-

Temperature, data logger, Hobo®Temp, Security

#### APPROVALS

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Environmental Hazards Assessment Program (EHAP) organization and personnel such as management, senior scientist, quality assurance officer, project leader, etc. are defined and discussed in SOP ADMN002.

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#### **1.0 INTRODUCTION**

##### **1.1 Purpose**

Proper storage temperatures and security need to be maintained for samples stored at the EHAP Warehouse. A temperature recording device such as a data logger or min/max thermometer should be placed in refrigerators and freezers which store samples awaiting delivery to laboratories to ensure that proper temperatures are maintained. Security should also be maintained for samples in EHAP possession.

##### **1.2 Scope**

This document provides specific instructions for recording temperatures of refrigerators and freezers with a Hobo<sup>7</sup>Temp data logger and min/max thermometers. This also describes how to assess proper storage temperatures, maintain and remedy malfunction of the data logger, refrigerators, and freezers, and describes security at the EHAP warehouse located at 3971 Commerce Drive, West Sacramento, CA 95691

#### **2.0 MATERIALS**

- 2.1 Hobo<sup>7</sup>Temp data logger
- 2.2 Min/Max thermometer
- 2.3 Computer, Boxcar<sup>7</sup> software, interface cable
- 2.4 Refrigerator or freezer

#### **3.0 PROCEDURES**

##### **3.1 Launching the Hobo<sup>7</sup>Temp data logger**

- 3.1.1 Connect the interface cable to the computer serial comm port. Then connect the other end of the cable to the jack on the data logger.
- 3.1.2 Click on the BoxCar<sup>7</sup> application in the sample tracking menu on the PC. Then click on logger on the tool bar and select launch.
- 3.1.3 BoxCar<sup>7</sup> will prompt you for three parameters within the launch menu. First enter a file name in the Description line. Enter the current date in the following format: day, month, year (i.e. 19dec98). Next, click on the Interval (Duration) section. Select

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a twelve minute interval between readings. This interval will yield a fifteen day monitoring period before the logger must be down-loaded and re-launched. The third parameter should be set to read temperature in degrees Celsius.

3.1.4 When it is ready for use, the red light on the logger will blink faintly.

#### **3.2 Placement of logger in the refrigerator/freezer.**

Place logger in a dry location in the refrigerator/freezer, not too close to the door or lid opening, and where it is not likely to be damaged.

#### **3.3 Reading data from the Hobo<sup>7</sup>Temp data logger.**

3.3.1 Data should be downloaded from the data logger on a weekly basis.

3.3.2 Reconnect the logger with the cable to the computer

3.3.3 Click on the BoxCar<sup>7</sup> application, then click on logger on the tool bar and select readout. The logger will now download the data into the computer.

3.3.4 After the data is downloaded, the data will be plotted and save as will appear. The launch date of the logger plus a .dtf extension will be the default file name. Change the extension to a descriptor of the refrigerator/freezer that the samples are being stored in. For example, Storage Freezer #6 should be labeled .sf6. Storage Refrigerator #10 would be labeled .s10. Save all down-loaded data to the Boxcar3\wsacstorage directory.

3.3.5 Documentation of out of range temperatures is covered in QAQC003.01.

#### **3.4 Assessment of proper storage temperature.**

3.4.1 Examine the plotted data to ensure that proper temperature has been maintained.

3.4.2 Refrigerators should be maintained between 2°C and 7°C. Freezers should be maintained below 0°C.

3.4.3 As a backup to Hobo<sup>7</sup>Temp data loggers, a minimum/maximum thermometer

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should be placed in all freezers and refrigerators that do not have dial temperature recorders. The minimum/maximum thermometer and dial temperature recorders should be inspected on a daily basis in freezers and refrigerators storing samples.

- 3.4.4 If temperatures recorded on loggers or min/max thermometers are outside parameters, note the study numbers and sample numbers affected, maximum or minimum temperature reached and length of time temperatures were out of range. Inform the lab liaison, the project leader and the warehouse manager.
- 3.4.5 Maintain a log on each refrigerator and freezer used to store samples. Include:
- 1) the date that the daily temperature report is made.
  - 2) whether the temperature was maintained in an acceptable range.
  - 3) who was notified of any out of range temperatures.
  - 4) initials of person reporting temperatures.

### **3.5 Maintenance and remedial action.**

- 3.5.1 Hobo<sup>7</sup>Temp data loggers should always be kept in a dry environment. If a logger fails to function properly (i.e. fails to download, fails to launch or does not record temperatures), make sure the unit is thoroughly dry and change the units internal battery (Sony CR 2032 or equivalent). If the unit still does not function, return the unit to the manufacturer for service.
- 3.5.2 Refrigerators and freezers should be kept clean and frost-free. If a malfunction is suspected, inform the warehouse manager and transfer all samples to another refrigerator or freezer. If freezer or refrigerator space is not available, store samples on dry ice or wet ice as appropriate.

### **3.6 Security**

- 3.6.1 Access to the EHAP Warehouse is provided to EHAP staff and employees from the Worker Health and Safety Branch only. Maintenance persons are permitted to enter the facility, but are not allowed to enter sample storage freezers or refrigerators.

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- 3.6.2 Doors to the warehouse are locked and security alarm set whenever the building is vacated by EHAP staff.
- 3.6.3 Storage refrigerator 10 and storage freezers 5 and 6 have locks. These locks may be used if deemed necessary by management, laboratory liaison, quality assurance unit or the project leader for any samples needing additional security.